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THE ECONOMIC IMPACTS OF THE ENTEGRATED PEST MANAGEMENT PROGRAME ON COTTON CROP IN ELFAYOUM GOVERNORATE

By

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B.S.C. in Agricultural Sciences (Agricultural Economics)

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Cairo University 2000

Thesis

**Submitted in partial Fulfillment of the
Requirements for the Degree of master**

In Agricultural Sciences

(Agricultural Economic)

Department of Agricultural Economics

Faculty of Agriculture, El- Fayoum

Cairo University

2005



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SUMMARY AND CONCLUSION

The Egyptian cotton is considered the pest all over the world. There are lots of kinds and types of cotton but it reduces softness and quality. The cotton in the agriculture sector occupies the biggest percent in the Summer Season among other sources. The agriculture of cotton forms the main source in the financial income in the Egyptian countryside. In the field of industry is considered the main material which contributes in the settlement of the weaver industries in Egypt. The oil is derived from its nuts, which are also used on feeding animals. The agriculture of cotton is considered one of the summer crops which need intensive labour and needs nearly 381 cubic meter of water/Fadden. The exports of Egyptian cotton formed 1490 millions L.E (about 25% of the total value of agriculture export and about 504% of national exports on 2002), The value of its product formed nearly 2068 Millions L.E (3% of the agriculture production) for the year 2002. Agriculture of cotton in Egypt forms nearly 917 thousands of Fadden the period from 1980 to 2002 (nearly 6.425 million cantar with the rate of 5.9 kantar per Fadden). Pest control is considered the main process in the programme of agriculture production (with the average cost of 20-30% of the total production). The loss which results from pests is settled between 35-50% from the total production. The programme of pest control in the last two decades depends on chemicals. The scientific experiment appears the bad effects of these chemicals on human beings and environment. So the amount of using these chemicals reduces from 20000 tones at the beginning of 1980 to 1.9 ton in 2000. The cotton consumed about one third of this amount (.1991-2002) is aiming to reduce the use of chemicals and recommend control by alternative ways.

The study target mainly to

- 1- Study of the economical cotton production in general and specifically the costs of pest control
- 2- Study the economics of using chemical pesticides in pest control of cotton.



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3-Investigate the most important factors which have the impact on economics of cotton production (revenues , costs) under the umbrella of traditional agriculture style and integrated pest management system.

Data are gathered mainly from two sources

First Secondary Data

- 1-ministry of agriculture.
- 2-the central device for statistics.
- 3-Food and Agriculture Organization (F A O)
- 4-The center of information and supporting making decision in Fayoum governorate.
- 5-Books,Periodical, Internet articles and Scientific researches

Second Primary Data

Purposive Sampling (anon probability sample that conforms to certain criteria) of Fayoum farmers who use traditional pest control ways and others who use integrated pest control system is the way of selecting the sample of the study then the questionnaire form was used to survey the sample and gather secondary data

Data Analysis methods

the researcher used two methods to analyze data obtained

A-Qualitative Analysis data obtained from secondary resources were analyzed using qualitative analysis to investigate the important economic of cotton in Egypt .in addition this analysis targeted the development of cotton pest control system costs in the period from 1980 to 2002 (this period was divided into two period the first one was from 1980 to 1990 before using integrated pest management and the second one was system from 1991 to 2002 after using integrated pest management system) this field study was carried out in Fayoum Governorate

B-Quantitative Analysis data obtained from Questionnaire forms were Analyzed using spss (statistical package for social sciences)



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The structure of The study

parts in The study includes five main addition to the summary and conclusion Arabic and English references, the introduction includes the importance of the study, the problem of study , the aim of the study, the style of the research, resources of data and arrangement of the study

The study structured into five main parts .

A-The first part It is divided into two chapters – The first one (literature Reviewed) – The second one (introduction to integrated pest management system)

B-The second part – It is divided into two chapter –the first one (economic factors of Egypt ion cotton) *-the second one (economic factors of cotton in Fayoum governorate)

C-the third part ,It is divided into two chapters .the first one (economic of costs of integrated pest management in Egypt)-the second one (economics of costs of integrated pest management in Fayoum governorate)

D-the fourth part .It is divided into two chapter .-the first one (the economics of using pesticides in Egypt)-the second one (the economics of using pesticides in Fayoum)

E-the fifth part . It is divided into two chapter –the first one (sample of the study)-the second one (data analysis of the economic effect of integrated pest management of cotton in Fayoum governorate)

The obtained results showed that the cultivated area of cotton crop in Egypt decreased from 973760 Feddans with average yield of about 6.3 million quintal during (1980 – 1990), to 779870 Feddans with average yield of about 5.04 million quintal in the period of (1991-2002) having decreasing percentage of about 20%. On the other hand, cotton exports decreased from about 140800 Ton with average value of about 288 million LE. in the period of (1980-1990) to 67240 ton with average value of about 571 million LE. in the period of (1991-2002) having decreasing percentage of about 52%.

In the same manner, the cultivated area of cotton crop in Fayoum decreased from 40000 Feddans with average yield of about 233000 quintal



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الملخص الانجليزي



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during (1980 – 1990), to about 32000 Feddans with average yield of about 203000 quintal during (1991-2002) having decreasing percentage of 20%.

It is revealed that the gross costs of manual control of cotton pests in Egypt during (1980-2002) was unstable among increases and decreases. Thy reached the minimum value with 13.57 L .E (1980) ,and the maximum value with 79.7L .E (2002) ,with an average of 39.6 L .E (1980-2002) ,Also, Thy had an annual general trend estimated with about 2.12, 4.1 and 4.8 L .E which represented 5.4%, 13 % and 10.3 % of the annual average of the gross costs for the manual control during the 1980-2002, 1980-1990 and 1991-2002 of the study, respectively ,Additionally, the change rate among the first and second period average reached about 52 %.

It is revealed that the gross costs of chemical control of cotton pests in Egypt during (1980-2002) was unstable among increases and decreases. Thy reached the minimum value with 48.3L .E (1980) ,and the maximum value with 202 L .E (1980) ,with an average of 94.9L .E (1980-2002) ,Also, Thy had an annual general trend estimated with about 1.8, 2.9 and -13.5 L .E which represented 2%, 4.3 % and 11.3 % of the annual average of the gross costs for the chemical control during the 1980-2002, 1980-1990 and 1991-2002 of the study, respectively ,Additionally, the change rate among the first and second period average reached about 71 %.

It is revealed that the gross costs of fermions control of cotton pests in Egypt during (1980-2002) was unstable among increases and decreases. Thy reached the minimum value with 7.5 L .E (1987) ,and the maximum value with 69.2 L .E (1995) ,with an average of 36.8 L .E (1980-2002) ,Also, Thy had an annual general trend estimated with about 3.4, - and 3 L .E which represented 9 %, - % and 6.5 % of the annual average of the gross costs for the fermions control during the 1980-2002, 1980-1990 and 1991-2002 of the study, respectively ,Additionally, the change rate among the first and second period average reached about 471%.

It is revealed that the gross costs of totel control of cotton pests in Egypt during (1980-2002) was unstable among increases and decreases. Thy reached the minimum value with 61.87 L .E (1980) ,and the maximum value with 286.8 L .E (1995) ,with an average of 159 L .E (1980-2002) ,Also, Thy had an annual general trend estimated with about 7.1, 8.2 and -5.8 L .E which represented



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4.5%, 7.9 % and 2.7 % of the annual average of the gross costs for the total control during the 1980-2002, 1980-1990 and 1991-2002 of the study, respectively ,Additionally, the change rate among the first and second period average reached about 105 %.

In the same manner, It is revealed that the gross costs of manual control of cotton pests in Fayoum during (1980-2002) was unstable among increases and decreases. Thy reached the minimum value with 10.34 L .E (1980) ,and the maximum value with 121L .E (1998) ,with an average of 42.3 L .E (1980-2002) ,Also, Thy had an annual general trend estimated with about -2.15, 6.3 and 3.4 L .E which represented 5%, 18.4 % and 6.9 % of the annual average of the gross costs for the manual control during the 1980-2002, 1980-1990 and 1991-2002 of the study, respectively ,Additionally, the change rate among the first and second period average reached about 42%.

It is revealed that the gross costs of chemical control of cotton pests in Fayoum during (1980-2002) was unstable among increases and decreases. Thy reached the minimum value with 29.5L .E (2002) ,and the maximum value with 155.76 L .E (1992) ,with an average of 76 L .E (1980-2002) ,Also, Thy had an annual general trend estimated with about -0.97, -2.15 and -11 L .E which represented 1.2 % , 2.9 % and 2.7 % of the annual average of the gross costs for the chemical control during the 1980-2002, 1980-1990 and 1991-2002 of the study, respectively ,Additionally, the change rate among the first and second period average reached about 8%.

In the same manner, It is revealed that the gross costs of fermions control of cotton pests in Fayoum during (1980-2002) was unstable among increases and decreases. Thy reached the minimum value with 7.7 L .E (1987), and the maximum value with 137.7 L .E (1995) ,with an average of 85.7 L .E (1980-2002) ,Also, Thy had an annual general trend estimated with about 5.2 , - and 2.78 L .E which represented 9%, - % and 3.7 % of the annual average of the gross costs for the fermions control during the 1980-2002, 1980-1990 and 1991-2002 of the study, respectively ,Additionally, the change rate among the first and second period average reached about 658%.

It is revealed that the gross costs of total control of cotton pests in Fayoum during (1980-2002) was unstable among increases and decreases. Thy reached the minimum value with 57.6 L .E (1980) ,and the maximum value with 278 L .E (1995) ,with an average of 159L .E



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(1980-2002) ,Also, Thy had an annual general trend estimated with about 6.4, 9.7 and -4.8 L .E which represented 4%, 8.8% and 2.36 % of the annual average of the gross costs for the total control during the 1980-2002, 1980-1990 and 1991-2002 of the study, respectively ,Additionally, the change rate among the first and second period average reached about 82%.

It is clear that the pesticides quantity used in cotton pest control in Egypt was 8448 ton as average between (1980-1990) representing about 47% of the total used pesticides in the agricultural production in Egypt. Whereas it decreased to about 1372 ton as average between (1991-2002) representing about 39% of the total used pesticides in the agricultural production in Egypt, with decreasing percentage of 83%. On the other hand, the pesticides quantity used in cotton pest control in Fayoum was 419.4 ton as average between (1980-1990) representing about 5% of the total used pesticides in cotton pest control in Egypt. Whereas it decreased to about 97.3 ton as average between (1991-2002) representing about 6% of the total used pesticides in cotton pest control in Egypt, with decreasing percentage of 77%.

The field study explained that, the most problems which are related to IPM of cotton crop are the difficulties in IPM application, the absence of specialized guide role, and insufficient information at the rate of 89.33%, 46.667%, 34.67% respectively.

The standard determination of the production functions explained that, the most significant factors in production process in case of applying the classical control are the nitrogen-fertilizers, machinery work, phosphate-fertilizers, pesticides quantity, total human work without control, where the elasticity factors were about 0.31, 0.18, 0.17, 0.12, and 0.11 respectively. But in case of applying the IPM control, the most significant factors in production are the human work which is used in the hand control, machinery work, Nitrogen-fertilizers, potassium-fertilizers and pesticides alternatives, where the elasticity factors were about 0.27, 0.225, 0.12, 0.13, 0.108 and 0.104 respectively.



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With respect to costs functions, it is clear that 58%, 49% of existent changes in gross production costs are due to production changes in IPM, classical control, respectively.

Some economical derivatives were calculated in order to define the production efficiency. It is found that the yields of 8.035 and 9 quintal for IPM and classical control, respectively, are causing benefit maximization. While the yields of 6.65 and 7.254 quintal for IPM and classical control, respectively, are causing benefit minimization

عميد الكلية

الأستاذ الدكتور/ منى
الخشاب

رئيس مجلس القسم

الأستاذ الدكتور/ إيناس صادق

المتقدم للترقية

الدكتور/ عيد نعيمة فيصل